NASA Glenn Success Stories

Fabric Images Taps NASA Glenn 3D to 2D Technology to Improve Core Processes

TECHNOLOGY

NASA Glenn has developed a computer program that offers enhanced capabilities for calculating two-dimensional (2D) patterns needed to construct specified three-dimensional (3D) surfaces to within acceptably close approximations, with minimal waste of material.

COMMERCIAL APPLICATION

Fabric Images Inc. creates three-dimensional graphic displays for clients in the retail, museum, architecture, and exhibit/tradeshow communities. For Fabric Images, the challenges of constructing such displays lie in controlling image distortion and limiting the waste of material.

Software developed by the NASA Glenn Research Center has proven to be a catalyst that helped Fabric Images create new technology solutions. NASA Glenn's optimized flattening ("3D to 2D") software allows a user to create two-dimensional patterns from three-dimensional surfaces or structures.

Fabric Images is using software developed at NASA Glenn to boost core business processes. (www.fabricimages.com)

GLITeC prepared Fabric Images to enter into a software use agreement with NASA Glenn to apply the 3D to 2D technology in-house, and also paired Fabric Images with the researcher responsible for the flattening algorithms. The NASA Glenn researcher defined the 3D to 2D technology that applied to the company's design & manufacturing needs. In turn, this lead to the collaborative devolopment of a custom 3D to 2D flattening process involving grand format graphics. This increased the efficiency of the company's production process as well as the company's ability to offer new services.

SOCIO-ECONOMIC BENEFIT

For Fabric Images, working with the optimized flattening software and developing a mentor relationship with the NASA researcher has advanced the company's development capabilities and manufacturing processes.

The technology impacted key areas of Fabric Images' manufacturing process. The technology improved design capability and accuracy of 3D to 2D pattern templates. The use of the pattern templates eliminated an entire fitting step from the sewing construction process, creating an 11.5 percent time savings per project. Additional benefits include the ability to offer new design services as well as improvements in current graphic techniques. One such improvement was decreased file size for grand format output. New design services, such as 2D graphic distortion, allow for graphic designs to be applied to 3D surfaces.

NASA APPLICATIONS

In advancing its core space exploration missions, NASA Glenn has developed many types of necessary software. The optimized flattening software is a critical element of the design and manufacture of new exploration vehicle parts. Another application for this software is the design of composite turbine blades.

Point of Contact:

Great Lakes Industrial Technology Center
glitec@battelle.org
Phone: 216/898-6400
Fax: 216/898-6550
20445 Emerald Parkway Drive, S.W.
Cleveland, OH 44135

TT&P Technology Transfer & Partnership Office
ttp@grc.nasa.gov
Phone: 216/433-3484
Fax: 216/433-5531
21000 Brookpark Road
Cleveland, OH 44135